

IN THE CLAIMS:

The following claim listing will replace all previous listings of the claims:

1. (Previously presented) A method of detecting a clonal population of cells in a biological sample, said method comprising co-localising mitochondrial DNA derived from said sample, which co-localisation is based on nucleotide sequence identity, and qualitatively and/or quantitatively detecting the levels of said co-localised mitochondrial DNA wherein a higher level of a co-localised mitochondrial DNA population relative to background levels is indicative of the presence of a clonal population of non-neoplastic cells.
2. (Previously presented) A method for diagnosing and/or monitoring a clonal population of non-neoplastic cells in a mammal, said method comprising co-localising mitochondrial DNA derived from a biological sample derived from said mammal, which co-localisation is based on nucleotide sequence identity, and qualitatively and/or quantitatively detecting the levels of said co-localised mitochondrial DNA wherein a higher level of a co-localised mitochondrial DNA population relative to background levels is indicative of the presence of a clonal population of non-neoplastic cells.
- 3-12. (Canceled)
13. (Previously presented) The method according to claim 1 or 2, wherein said mitochondrial DNA is mitochondrial D loop DNA.
14. (Canceled)
15. (Previously presented) The method according to claims 1 or 2 wherein said co-localisation is achieved utilising any one of the techniques of:
 - (i) Denaturing gradient electrophoresis
 - (ii) Temperature gradient denaturing electrophoresis
 - (iii) Constant denaturing electrophoresis
 - (iv) Single strand conformational electrophoresis

- (v) Denaturing high performance liquid chromatography
- (vi) Microassays
- (vii) Mass spectrometry

16. (Previously presented) The method according to claim 1 or 2 wherein said co-localisation is achieved utilising denaturing gel or capillary electrophoresis.

17. (Currently amended) A method for diagnosing and/or monitoring a non-neoplastic disease condition, said method comprising co-localising mitochondrial DNA derived from a biological sample derived from said mammal, which co-localisation is based on nucleotide sequence identity and qualitatively and/or quantitatively detecting the levels of said co-localised mitochondrial DNA wherein a higher level of the co-localised mitochondrial DNA population relative to background levels is indicative of the presence of a clonal population of non-neoplastic cells.

18-27. (Canceled)

28. (Previously presented) The method according to claim 17 or 33 wherein said mitochondrial DNA is mitochondrial D loop DNA.

29. (Canceled)

30. (Previously presented) The method according to claims 17 or 33 wherein said co-localisation is achieved utilising any one of the techniques of:

- (i) Denaturing gradient electrophoresis.
- (ii) Temperature gradient denaturing electrophoresis
- (iii) Constant denaturing electrophoresis
- (iv) Single strand conformational electrophoresis
- (v) Denaturing high performance liquid chromatography
- (vi) Microassays

(vii) Mass spectrometry

31. (Previously presented) The method according to claim 17 or 33 wherein said co-localisation is achieved utilising denaturing gel or capillary electrophoresis.
32. (Currently amended) The method according to claim 1 or 2 wherein said non-neoplastic of cells correspond to a ~~[[myelodysplasia]]~~myelodysplasia, ~~[[polycythacemia]]~~polycythaemia vera or a myeloproliferative syndrome.
33. (Previously presented) The method according to claim 17 wherein said disease condition is myelodysplasia, polycythaemia vera or a myeloproliferative syndrome.